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(12) **United States Patent**
Isaacs

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(54) **SYSTEMS, DEVICES, AND METHODS FOR
DESIGNING AND FORMING A SURGICAL
IMPLANT**

(56) **References Cited**

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(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
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(21) Appl. No.: **14/049,183**

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(51) **Int. Cl.**

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CPC **A61B 19/50** (2013.01); **A61B 17/7011**
(2013.01); **A61B 17/8863** (2013.01); **A61B**
34/10 (2016.02); **G06F 19/3437** (2013.01)

(58) **Field of Classification Search**

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See application file for complete search history.

(57) **ABSTRACT**

A method is provided for determining the shape of a surgical
linking device that is to be attached to a bony body structure
such as the spinal column based on digitized locations of a
plurality of attachment elements engaged to the bony struc-
ture. The method is implemented by a computer system
through a GUI to generate an initial bend curve to mate with
the plurality of attachment elements. The initial bend curve
may be simplified based on user input to the GUI to reduce
the number of bends necessary to produce a well-fitting
linking device and may be altered to help obtain the goals of
surgery.

20 Claims, 31 Drawing Sheets

